

### REMARKS

The examiner notes that the amendment filed 06/22/2007, which amended claims 1, 7, 11, 22, 24, 28 and 29, overcame the Section 112 rejection.

#### 35 U.S.C § 102

The examiner rejected Claims 1-30 under 35 U.S.C. 102(e) as being anticipated by Herz (US 2001/0014868).

#### Claims 1-3

Claim 1 is directed to a computer-implemented method of determining a prioritized listing of offers for use to contact potential customers. More specifically, claim 1 is directed to generating ... an ordered listing of offers ..., by which to contact a potential customer from a group of potential customers by considering the potential customer independently from others of the potential customers in the group, ... .. The examiner contends that:

**[c]laim 1, Herz teaches:**

**A computer-implemented method of determining a prioritized listing of offers for use to contact potential customers, the method comprises: generating in a computer an ordered listing of offers from a set of offers, by which to contact a potential customer from a group of potential customers by considering the potential customer independently from others of the potential customers in the group, during generating of the ordered listing of offers for the potential customer (see paragraphs 158, 236-243).**

Further, the examiner states:

**Herz teaches creating individual shopper profile from group shopper profiles (see paragraph 34), however, Herz automatically constructs product offers tailored to individual shoppers based upon said individual shopper profile in a way to maximize the vendor's profits (see paragraph 4-5).**

Applicants disagree. Paragraphs [0004] and [0005] in Herz are directed to describing the tracking of shoppers' behavior through profiles. Although Herz describes a "...system [that]

automatically constructs product offers tailored to individual shoppers...” Herz whether at the cited paragraphs or elsewhere neither describes nor suggests a method of generating in a computer an ordered listing of offers from a set of offers ... by considering the potential customer independently from others of the potential customers in the group, .... ..

Rather, Herz notes that “[p]eople who shop for the same things, and in the same way, tend to purchase similar products and respond to similar promotions. Further, the less immediate costs and benefits of selling a given product to those people are similar.” That is, Herz provides teaches to consider shoppers as a group rather than considering shoppers as individuals in the generation of offers as required in claim 1.

Paragraph [0034] in Herz is directed to replacing a profile of a shopper with a profile of a cluster of shoppers. The profile of the cluster of shoppers may be similar to the profile of the shopper but not in general identical. Herz teaches here that using cluster profiles rather than shopper profiles not only saves computer memory and increases speed, but also “...helps to compensate for the fact that shopper profiles do not generally contain complete information about the shoppers they describe”. In this paragraph, Herz further defines the rationale for considering a cluster of shoppers together, rather than considering individual shoppers in the generation of offers, as required in claim 1 and therefore clearly teaches away from the subject matter claimed in claim 1.

In Paragraph [0158] is directed to defining the distance between any pair of profiles and in particular directed to: “applying a standard clustering algorithm, such as k-means, to group a set of offers or shoppers into a number of clusters, in such a way that offers or shoppers with similar profiles tend to be grouped in the same cluster.” This grouping of shoppers does not suggest: “generating ... an ordered listing of offers from a set of offers, by which to contact a potential customer from a group of potential customers by considering the potential customer independently from others of the potential customers in the group...”

As explained by Herz, “the k means clustering method ... finds a grouping of points ... to minimize the total of the squared distances between points in the clusters and the centers of the clusters in which they are located.” In essence Herz seeks to find a centroid of the cluster to represent the cluster.

Herz further discusses “...’soft’ or ‘fuzzy’ k means clustering, in which offers (respectively shoppers) are allowed to belong to more than one cluster.” This concept of “fuzzy” clustering implies that an individual

customer may receive offer profiles corresponding to more than one cluster of shoppers and does not imply any consideration of the shopper as an individual in the generation of offers as required in claim 1.

Paragraphs [0236-0243] likewise fail to describe or suggest claim 1.

Paragraph [0237] neither describes nor suggests “generating ... an ordered listing of offers from a set of offers, by which to contact a potential customer from a group of potential customers by considering the potential customer independently from others of the potential customers in the group, during generating of the ordered listing of offers for the potential customer.” While, Paragraph [0237] mentions: “Broadly speaking, however, only one of these offers should be made to a given shopper at a given time, and it is advantageous for the vendor to choose that offer so as to maximize long-term expected profit.” This does not suggest the features of claim 1, nor is even directed to a methodology.

Paragraphs [0238-0239] merely discuss how the profit on a sale is determined.

Paragraph [0240] discusses: “... to try to maximize profit per shopper: e.g., for each product, make the highest-priced offer (price, advertisement and all) that the shopper is likely to accept.” However, Herz teaches to: “... estimate, for each offer  $j$ , the expected quantity  $\sum p_{ij}q_i$  that the shopper would buy.” However, rather than considering each individual separately, Herz teaches: “To make this estimation, we attempt to generalize to this (shopper, offer) pair from other, similarly profiled (shopper, offer) pairs, for which the actual quantities sold are known.”

Herz also states that: “The most straightforward way to address this problem is to group shoppers together to predict how likely each shopper is to purchase a given offer (which includes product, price and promotion), and then use a separate optimization method to determine which offers to make. .... Once one has estimated  $q(V,X)$  by clustering similar shoppers and offers together (as described above) and using the expectation that similar shoppers will buy similar quantities of similar offers, then profit can be maximized directly by the obvious method of seeing what  $V$  and  $X$  make the profit largest.”

Thus, in no sense can Herz, which seeks to cluster shoppers, be construed to suggest: “generating ... an ordered listing of offers from a set of offers, by which to contact a potential customer from a group of potential customers by considering the potential customer independently from others of the potential customers in the group, during generating of the ordered listing of offers for the potential customer.”

Also in paragraph [0241] Herz poses as an alternative: "...clustering the shoppers by—and providing each cluster of shoppers with a cluster specific offer for each product, ..." However, this alternative also neither describes nor suggests the feature of claim 1.

Claims 2-3 are allowable at least for the reasons discussed in claim 1.

#### Claim 4

Claim 4 is directed to the method of claim 1. In addition, claim 4 is directed to operating on the set of offers for each member of the group of potential customers. The examiner contends that:

#### **Claim 4, Herz teaches:**

**The method of claim 1 wherein generating operates on the set of offers for all members of the group of potential customers, by considering each potential customer independently from others of the potential customers in the group (see paragraphs 236-243).**

Applicants disagree. Nowhere does Herz disclose operating on the set of offers for each member of the group of potential customers. Rather, as Herz teaches in paragraph [0240-0241],

**[t]he most straightforward way is...to group shoppers together to predict how likely each shopper is to purchase a given offer..., and then use a separate optimization method to determine which offers to make...Once one has estimated [quantity]  $q([shopper] V, [offer] X)$  by clustering similar shoppers and offers together...one can work to directly maximize profit by...adjusting the offers for each cluster of shoppers over time (modifying the function  $X(V)$ )...<sup>1</sup>**

Herz clearly teaches operating on a set of offers for a group (cluster) of shoppers, rather than on a group of offers for each member of the group. Herz accordingly, does not disclose or suggest the method of claim 4.

#### Claim 5

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<sup>1</sup> Explanations of variables supplied.

Claim 5 is directed to the method of claim 1. In addition, claim 5 is directed to producing an alternative ordered listing of N offers when a number of offers exceeds a number N of offers allocated for a potential customer.

The examiner contends that in

**[c]laim 5, Herz teaches:**

**The method of claim 1 wherein if the number of offers exceeds the number of offers allocated for customer, the method further comprises: producing an alternative list having the best n offers (see paragraphs 236, 243, 257-258).**

Paragraphs [0236-0243] fail to describe or suggest claim 5.

Paragraph [0257] describes a system that "...constructs a list of interesting clusters...found by considering all appropriate clusters C that are further than a threshold distance t from [the most prominent choices on the list]." Further, "...interesting clusters can be moved to menus higher in...[a] tree...[and] uninteresting clusters can be moved to menus lower in...the tree to make room for interesting clusters that are being moved higher." Note that "making room" is not neither describes nor suggests "producing an alternative ordered listing of N offers when a number of offers exceeds a number N of offers allocated for a potential customer."

Paragraph [0258] describes a system in which "...an additional menu of the most interesting offers in cluster C..." are considered. Again, this paragraph does not suggest "... a number of offers exceeds a number N of offers allocated for a potential customer." .

### Claim 6

Claim 6 is directed to the method of claim 1. In addition, claim 6 is directed to producing a list for each potential customer in the group of potential customers.

The examiner contends that in

**[c]laim 6, Herz teaches:**

**The method of claim 1 wherein generating the ordered listing is performed independently for each potential customer in the group of potential customers to produce a list for each potential customer (see paragraphs 257-258).**

Applicants disagree. In paragraphs [0257-0258], Herz teaches that

**[w]hen the system presents the shopper with a menu of subclusters of a cluster C of offers, it can simultaneously present an additional menu of the most interesting offers in cluster C, so that the shopper has the choice of...directly accessing one of the offers....If the threshold distance t is 0, then the menu...simply displays the...most interesting offers in cluster C...**

Herz fails to disclose the subject matter of claim 6, because the list of Herz was not obtained through the consideration of a single shopper, but through specific groupings (clusters) of shoppers. Although the single shopper in this example is creating a list, this list does not represent a prioritized listing of offers because the shopper is creating the list using data from a cluster of shoppers. In addition, according to Herz, there may be other clusters which contain offers that could have a higher place in a menu hierarchy than anything in the particular cluster C. (See paragraph [0257].) Accordingly, the list of Herz, is then not truly prioritized.

#### Claims 7, 20, and 28

Claim 7 is directed to a computer-implemented method of determining a prioritized number of offers. Claim 7 includes "...determining ...an ordered set of offers to be sent to each customer". Claim 7 also includes that: "for each customer, eliminating any offers that are not applicable to the customer based on eligibility rules for the offer or offers for which an expected profit for the customer is below a threshold amount; and ordering remaining offers by expected profit.

The examiner contends that:

**Claims 7, 20 and 28, Herz teaches:**

**A method of determining a prioritized number of contacts to customers from a group of customers, the method comprises:**

**determining an ordered set of offers to be sent to each customer, and for each customer, eliminating any offers that are not applicable to the customer based on eligibility rules for the offers or offers for which an expected profit for the customer is below a threshold amount (see paragraph 257); and**

**ordering remaining offers by expected profit (see paragraphs 237-240; 257-258).**

As discussed above, Herz neither describes nor suggests determining an ordered set of offers to be sent to each customer at least in paragraphs 237-240.

The examiner argues that these features are additionally taught in paragraphs [0257-258]. Applicant disagrees. Paragraph [0257] appears to be directed to making clusters more easily accessible, whereas, [0258] is another offer selection technique that "...presents the shopper with a menu of subclusters of a cluster C of offers, it can simultaneously present an additional menu of the most interesting offers in cluster C, so that the shopper has the choice of accessing a subcluster or directly accessing one of the offers." Neither of these paragraphs describe or suggest the features of claim 7.

Claims 20 and 28 are allowable for analogous reasons as given in claim 7.

Claims 8, 9, 21, 22, and 29

Claims 9, 22, and 29 are directed to claims 7, 20, and 28, respectively. In addition, claims 9 and 21 are directed to producing a proposed solution having an ordered listing of N offers where N is the lesser of the total remaining offers and the maximum number of offers allowed for the customer. Further, claims 9, 22, and 29 are directed to the proposed solution being represented as a bit string of a length that is equal to the total of the remaining offers.

The examiner contends that:

**[c]laims 8 and 21, Herz teaches:  
The method of claim 7 further comprising:  
producing a proposed solution having the best n offers where n is  
the lesser of the total remaining offers and the maximum number of offers  
allowed for the customer (see paragraphs 257-258)[,]**

and in

**[c]laims 9, 22 and 29. Herz teaches:  
The method of claim 8 wherein the proposed solution is  
represented as a bit string of a length that is equal to the total of the  
remaining offers (see paragraphs 236- 243).**

Applicants disagree. Nowhere in paragraphs [0236-0243] and [0257-0258] does Herz disclose or suggest a proposed solution having an ordered listing of N offers where N is the lesser of the total remaining offers and the maximum number of offers allowed for the customer.

Nor does Herz disclose or suggest the proposed solution being represented as a bit string of a length that is equal to the total of the remaining offers. Rather, Herz teaches his solution taking the form of a hierarchal tree. (See Herz, paragraph [0257].) Further, Herz does not disclose or suggest a maximum number of offers allowed for a particular customer.

Claims 10, 23, and 30

Claims 10, 23, and 30 are directed to claims 9, 20, and 28, respectively. In addition, claims 10, 23, and 30 are directed to the proposed solution is checked against rules of the form (M,S), meaning at most M offers from set S can be sent to a customer.

The examiner contends that:

**[c]laims 10, 23 and 30, Herz teaches:  
The method of claim 9 wherein the proposed solution is checked  
against rules of the form (M,S) meaning at most M offers from set S can be  
sent to a customer (see paragraphs 236-243).**

Applicants disagree. Nowhere in paragraphs [0236-0243] does Herz disclose or suggest a proposed solution that is checked against rules of the form (M,S). Rather, Herz discloses an “interest score” for each cluster (Herz, paragraph [0257]) which affects a clusters placement in a hierarchal menu. Such a metric does not take the place of a rule of the form (M,S) and is therefore not disclosed or suggested by Herz.

Claims 11 and 24

Claims 11 and 24 are directed to claims 10 and 23, respectively. In addition, claims 11 and 24 are directed to determining a number of bits  $T > M$  from the set S indicating offers that should be sent in the proposed solution, and generating new alternative proposed solutions that contain new alternative offers represented in a bit string by setting T-M bits that are not a part of the set S and which immediately follow a rightmost one bit R1 in the proposed solution.

The examiner contends that:

**[c]laims 11 and 24, Herz teaches:**



**The method of claim 10 wherein if an (M,S) rule is violated, a list of new alternative proposed solutions is generated by: determining a number of bits  $T > M$  from a set S that indicate offers should be sent in the proposed solution; generating new alternative proposed solutions that all contain new alternative offers, represented in a bit string by setting  $T-M$  number of bits that are not a part of set S, and which immediately follow a last one R1 of the "1" bits 10 in the proposed solution (see paragraphs 257- 258).**

Applicants disagree. Nowhere in paragraphs [0257-0258] does Herz disclose or suggest generating new alternative proposed solutions when a rule of the form (M,S) is violated.

Claims 12-19 and 25-27

Claims 12 and 25 are directed to claims 11 and 24, respectively. In addition, claims 12 and 25 are directed to generating alternative proposed solutions based on all combinations of the T one bits up to R1 and any zero bits in set S between R1 and R2 containing M one bits.

The examiner contends that:

**[c]laims 12 and 25, Herz teaches:  
The method of claim 11 further comprising:  
generating alternative proposed solutions based on all  
combinations of the T "1" bits up to R1 and any "0" bits in set S between  
R1 and R2 containing M bits set to "1" (see paragraphs 257-258).**

Applicants disagree. As discussed previously, nowhere does Herz disclose or suggest the generation of such solutions or alternatives.

Claims 13-19 and 26-27 are allowable at least for the reasons discussed in claims 12 and 25.

Accordingly, the application is in condition for allowance and such action is requested at the earliest possible convenience of the examiner.

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Respectfully submitted,

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